



Standard Operating Guidelines

SOG#: D101 – Level A, B and C DECON Procedures

Created: 01/11/13, Updated: 03/14/18, Version 4

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Introduction

This guideline discusses the basic decontamination (DECON) theory and procedures that should be employed at Region 4 Emergency Response and Removal Sites. Information found in this guide includes:

- [DECON Planning](#)
- [DECON Basics](#)
- [ERRPB Simplified DECON line for Level B, C and D+ entries and the steps to follow](#)
- [ERRPB simplified DECON Line for Level A and the steps to follow](#)
- [Full DECON line for Level A, B and C entries into hazardous situations](#)
 - [ERRPB Full DECON Line Schematic and Equipment List](#)
- [Recommended DECON solutions](#)
- [Recommended sample DECON procedures](#)
- [Situations where the standard decontamination process needs to be modified due to the unique hazards of the response](#)
- [Appendix A – Example Decontamination Plan](#)
- [Appendix B – Decontamination Leader Job Aid](#)

DECON Planning

The DECON Line must not be an afterthought. Entries cannot not be made into the Exclusion Zone (EZ) until the Contaminant Reduction Zone (CRZ) is established and an effective process and DECON line is implemented. A decontamination plan is developed as part of the Site Safety Plan.

During an emergency response, use the equipment and procedures found in the [Simplified DECON Line for Level B, C and D+ Entries](#), the [ERRPB Simplified Level A DECON Line](#) or the [Full DECON Line](#) as appropriate. For Removals, the Site Management Team can adapt these procedures and develop a site-specific DECON plan that meets the needs of the project.

	Simplified Level B, C and D DECON	ERRPB Level A Simplified DECON - 3 Entrants	ERRPB Level A Simplified DECON - >3 Entrants	Full Level A, B, C DECON
DECON Method:	Modified Wet	Wet	Wet	Wet
Number of Stations:	5	6	6	8-10
Necessary Personnel:	1	2	3	6-8
Approximate Footprint:	10' x 20'	20' x 20'	20' x 40"	20' x 40'

During the DECON planning process, consider the following and integrate into the decontamination section of the Site Safety Plan:

- Locating the DECON line uphill and upwind of the EZ.
- The appropriate decontamination method; wet, dry, simplified, etc. This determination is based on the potential contamination that will need to be removed and the specific contaminants. For example, a response involving ammonia or chlorine gas typically only requires exhaust fans to remove the residual contamination.
- The number and layout of decontamination stations.
- Is access to water needed? How will this be accomplished?



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- The number of DECON attendants needed per station.
- The decontamination equipment needed.
- [Determine the appropriate decontamination solution.](#)
- A process for rapid emergency decontamination is a critical part of the DECON Plan. During emergency DECON, steps may need to be eliminated, condensed and/or completed by more than one attendant simultaneously. Extra breathing air equipment and/or a breathing air cart can be positioned at the start of the DECON line for entrants who are out of or low on air. Saw horses and a medical backboard are used to move injured personnel out of the exclusion zone and to create a platform to decontaminate an injured or unconscious responder. The medical backboard may be provided by on-scene emergency medical services (EMS).
- Establish procedures to prevent contamination of clean areas.
- Establish methods and procedures to minimize worker contact with contaminants during removal of personal protective clothing and equipment (PPE).
- Developing a waste plan to manage and dispose of DECON rinsate, PPE and other consumables.
- [Establish methods for decontamination of samples.](#)
- [Are modifications to the standard decontamination process necessary?](#)

DECON Basics

The number of DECON Team members is scalable and additional personnel will be needed if large numbers of people are conducting EZ entries. The DECON Team will normally be dressed in one PPE level lower than the Entry Team. The DECON Team will have a Team Leader, who will be responsible for Team coordination and operations, including development of the plan and proper set-up of the CRZ.

The Entry Team Leader will determine which team members are decontaminated first and will line the team up in order of priority and level of contamination. Personnel low on air and/or with damaged or degraded PPE are decontaminated first, followed by cleanest to dirtiest entry team members. During the Entry Team Tactics and Safety Briefing, the DECON Team Leader will provide a dry-run walk-through of the DECON line to the Entry Team.

Entry Team members experiencing heat stress, experiencing chemical contamination symptoms, or experiencing other medical issues must go through emergency rapid decontamination. [See SOG#: T101 – In-Suit Emergency and MAYDAY Procedures for additional details](#) on notification procedures and steps to follow should an emergency occur in the Exclusion Zone. The Entry Team Leader must contact the DECON Team if emergency rapid DECON is necessary for any of the entry team members. The Entry Team will bring the injured team member to DECON or the Team Leader will request the backup/rapid intervention team (RIT) for assistance. EMS personnel may need to utilize appropriate PPE during patient care and transport and will need to notify the receiving hospital. All available information, such as a Safety Data Sheet (SDS), on the chemical, biological or radiological contaminant must be provided to EMS and the receiving hospital.

DECON personnel should give clear, concise instructions to Entry Team Members entering the CRZ, and guide them through each stage of the process. The Entry Team personnel may not remember what to do or in what order. To minimize cross-contamination, DECON Team members should minimize physical contact with the Entry Team until suit doffing process has begun; all communication should be verbal, using hand signals and/or taps on the shoulder with long-handled brushes. Efforts should be made to avoid over-spray of DECON solutions,



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and to avoid cross-contamination of other personnel and the CRZ area. Use Vizqueen or drum liners to line tables and benches. Any items being brought out of the EZ must be either decontaminated or packaged for offsite disposal. This includes equipment, instruments, and samples.

DECON Team members must also go through the decontamination process. Before leaving the DECON Line, Team members should decontaminate any tools and/equipment as needed, containerize all liquid and solid wastes and prep the line for the next set of entries. They should begin their decontamination process one station up from the station they were manning. For example, all personnel manning stations 1-4 should begin DECON at station 1. All personnel manning stations 5-8 should begin at station 4, etc.

To break-down the DECON Line, Team Members should disassemble and decontaminate the station(s) to which they were assigned following the steps below:

- Step #1: DECON any tools and/or equipment that were left at the Tool Drop
- Step #2: Containerize all liquid and solid waste. Pump liquid waste from pools or basins or use absorbent pads.
- Step #3: DECON reusable basins, tents, pumps, hoses, brushes, hudson sprayers, saw horses, etc. Consider disposal as opposed to DECON. DECON Team Members also DECON their outer suits, outer gloves, and outer boots as part of this step.
- Step #4: Verify efficacy of DECON with appropriate air monitoring/testing equipment (MultiRAE Pro, TVA 1000, pH Paper, M8 Paper, etc.). Set equipment aside to dry.
- Step #5: Dispose of plastic kiddie pool and other consumables.
- Step #6: Dispose of Visqueen or tarps.
- Step #7: DECON Team Members should then DECON themselves. There should be limited to no contamination on the DECON Team if they follow appropriate contamination control methods. The simplified Level B, C, D+ DECON process may be sufficient.

Simplified Personnel Decontamination

The following decontamination line example and steps were developed to safely utilize the fewest number of personnel and resources possible while effectively protecting responders. These processes are based on Occupational Safety and Health Administration (OSHA) guidance found at <https://www.osha.gov/SLTC/hazardouswaste/training/decon.html>. These scaled-down procedures were developed based on the following assumptions:

- Responders are performing tasks that are not likely to result in suit contamination (i.e. air monitoring, site reconnaissance, oversight/command functions).
- Contamination will be, most likely, localized to the boots and gloves.
- Responders have some knowledge of chemicals and hazards that may be encountered during entry.
- PPE will be disposed. Any PPE that will be reused must be decontaminated on site. Depending on the types and concentrations of contaminants present, waste decontamination solutions and disposable PPE may need to be treated as a hazardous waste and disposed of accordingly.

Do not hesitate to implement a Full Decontamination Line staffed with sufficient personnel and resources if the hazards and conditions warrant the standard [Full Decontamination Process](#).



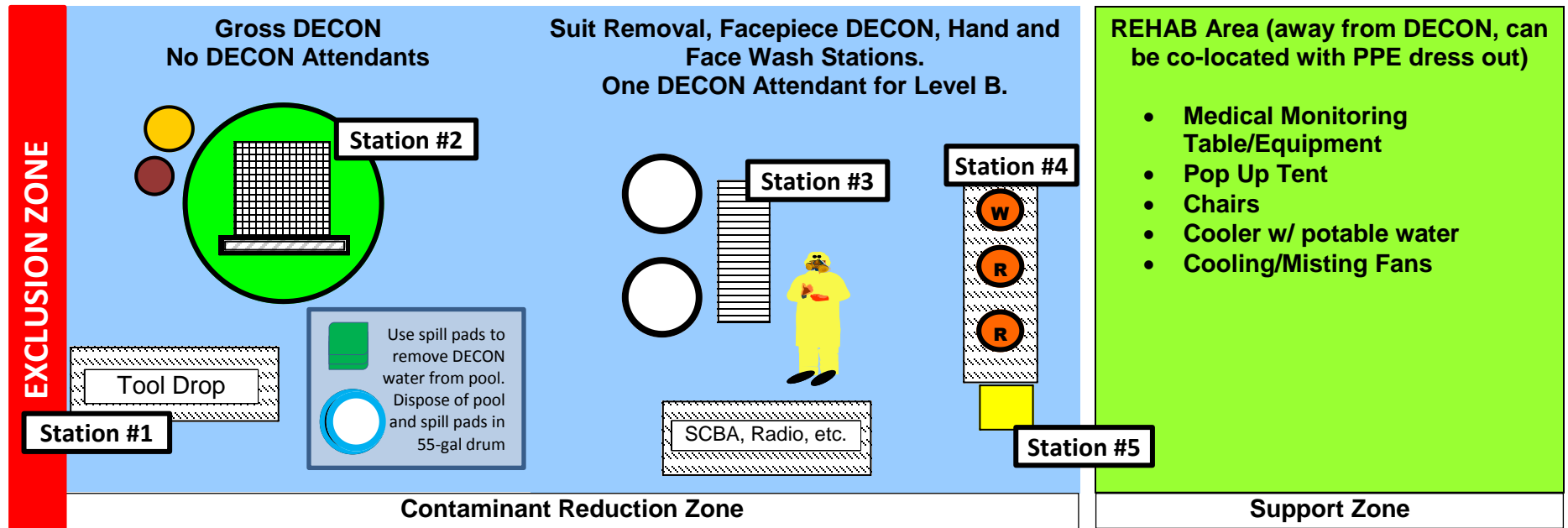
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Level B, C and D+ Simplified Decontamination Setup



Equipment List:		Legend		
3 – 4-foot tables	DECON Solutions	Tarp/Plastic	Drum Liner	SCBA Mask Wash
1 – 10X20 Tarps	55-gallon drum liners	Kiddie Pool	Saw Horse	SCBA Mask Rinse
4 – Traffic Cones	Spill Pads	55-gal drum	Bench	DECON Solution Bucket/Brush
1 – Roll Caution Tape	55-gallon drums	Grating	DECON Attendant W/ MultiRAE Pro	Hudson Sprayer for Rinse
1 – Plastic Pool	Visqueen to cover tables	Table, covered w/ plastic		Hand/Face Wash Station
1 – Folding Benches	Duct Tape	Spill Pads		
1 – Saw Horses	1- MultiRAE Pro			
1 – 2x2 Plastic Grate				
1 – Hand/Face Wash Station				
1 – Long Handle Brush				
1 – Hudson Sprayer				
4 – 5-gallon Buckets				

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Level B, C and D+ Simplified Decontamination Steps

Station #1	Sample and Equipment Drop: All equipment should be placed in a designated drop area for DECON. Position any equipment and/or instruments that are returning to the EZ so that subsequent Entry Teams can easily collect them. Follow the Sample DECON process for all media samples obtained in the EZ. Trash, disposable sampling equipment, extra outer gloves, etc. should be left in an appropriate receptacle in the exclusion zone.
Station #2	1. Entrant completes self or assisted gross wet DECON of outer gloves and boots.
Station #3	2. Entrant steps into a large poly drum liner. If wearing an APR or level D+; proceed to Step 5.
	3. For PAPR or SCBA, without removing air supply: <ul style="list-style-type: none">Entrant loosens the shoulder and waist straps on SCBA or PAPR.Attendant disconnects CommsAttendant removes the SCBA from back or the PAPR from the waist, protecting facepiece, regulator and hose line.
	4. Boot Removal <ul style="list-style-type: none">Entrant sits and uses pull tab to remove tape from boots.Places tape in the drum liner for subsequent DECON.
	5. Boot Removal <ul style="list-style-type: none">Use heel-toe release to remove boots.Remove boots and set aside in another drum liner for bin for additional DECON.Attendant should assist with boot removal if the Entrant is having trouble doffing the boots.
	This step is not necessary if wearing Level D+
	6. Remove Tape from Facepiece <ul style="list-style-type: none">Use pull tabsPull gentlyPlace tape in the drum liner
	7. Pull Back Zipper Overlap. Pull back carefully, adhesive may stick to gloves.
	8. Unzip Suit <ul style="list-style-type: none">Use zipper extensionZipper can be difficult to usePull gentlyZipper extension could come loose from the fly
Station #4	9. Suit Removal <ul style="list-style-type: none">Touch the outside of the suit w/ outer glovesGently shake from the shoulders to release suitRemove hoodKeep outer gloves taped to suitRemove suit from the shouldersKeep outer gloves on the outside of the suit
	10. Suit Removal <ul style="list-style-type: none">Remove hands from outer glove, do not remove tape, should stay with the suit. If not, remove outer gloves using the method described in Step 15Gently shake hand away from suitUsing inner gloves, grasp the inside of the suit only and remove suit below knees



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Station #4	11. Suit Removal <ul style="list-style-type: none">• Peel down like a banana• Only touch the inside of the suit• Push suit into drum liner
	This step is not necessary if wearing Level C or Level D+
	12. SCBA Removal <ul style="list-style-type: none">• With gloved hand, remove regulator while activating the cutoff button• As you are removing the regulator, step out of the drum liner
	This step is not necessary if wearing Level D+
Station #5	13. Mask Removal - With inner gloves still on, remove mask and place in wash solution for DECON
	14. Inner Glove Removal - Remove the inner glove by gasping the palm and pulling one glove partially off using the inside of the glove that was partially removed, remove the other glove and place in the drum liner
Station #5	15. Hand and Face Wash. Proceed to the hand and face wash station and wash your hands and face with soap and warm water. Although a thorough wash with soap and water is preferred, utilize cleaning wipes if a wash station is not available.
REHAB	16. Proceed to medical monitoring as appropriate. Hydrate and rest.



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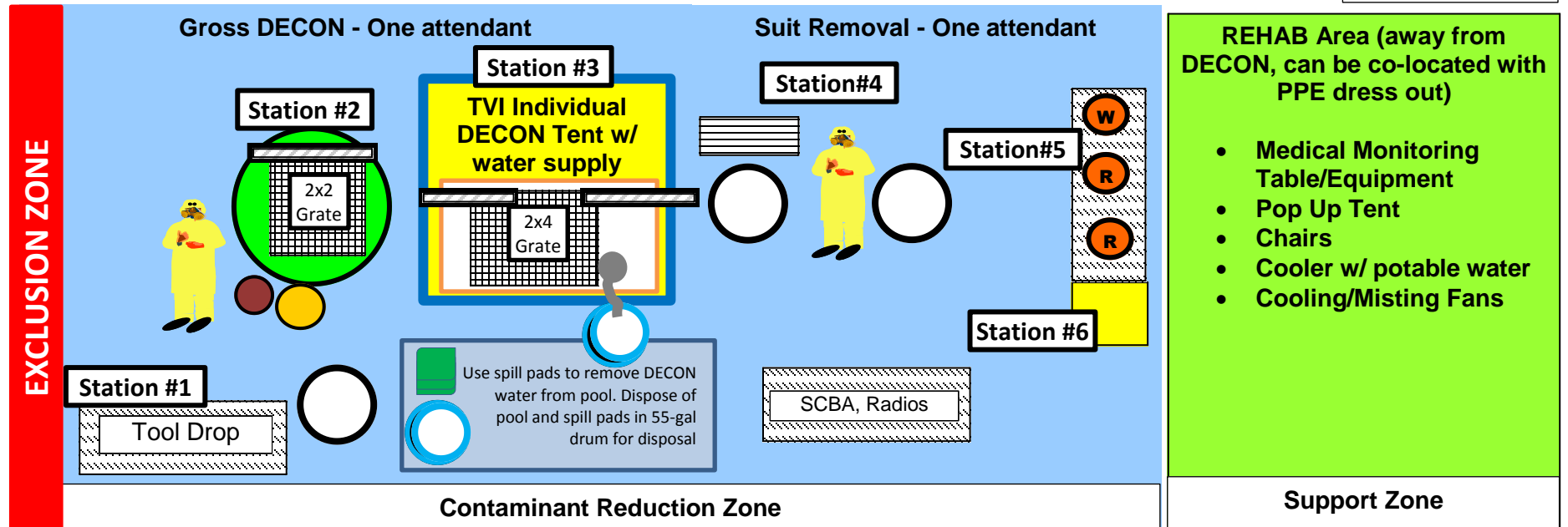
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ERRPB Simplified Level A Decontamination Setup - 3 Entrants or less

Wind Direction



Equipment List:

- | | |
|------------------------------|-----------------------|
| 1 – 10x30 Tarp/Plastic | 1 – Plastic Pool |
| 6 – Traffic Cones | 1 – 2x2 Plastic Grate |
| 1 – Roll Caution Tape | 3 – Saw Horses |
| TVI Individual DECON Line | 3 – 4-foot tables |
| • 1 – Indv. DECON Tent | 1 – Long Handle Brush |
| • 1 – Indv. Collection Basin | 1 – Hudson Sprayer |
| • 1 – Sump Pump | 4 – 5-gallon buckets |
| • 1 – 2x4 Plastic Grate | 1 – Hand/Face Wash |
| • 1 – Waste hose | DECON Solutions |
| • 1 – Supply hose | 55-gallon drums |
| • 1 – Extension Cord w/ GFCI | 55-gallon drum liners |
| • 1 – Generator | Spill Pads |
| • Adaptors and tools | 1 – MultiRAE Pro |

Legend

Tarp/Plastic	Grating	Drum Liner
TVI DECON Line	Sump Pump/Waste Hose	SCBA Mask Wash
Kiddie Pool	Saw Horse	SCBA Mask Rinse
Table, covered w/ plastic	Bench	DECON Solution Bucket/Brush
TVI Collection Basin	55-gal drum	Hudson Sprayer for Rinse
Spill Pads	DECON Attendant (One w/ MultiRAE Pro)	Hand/Face Wash Station

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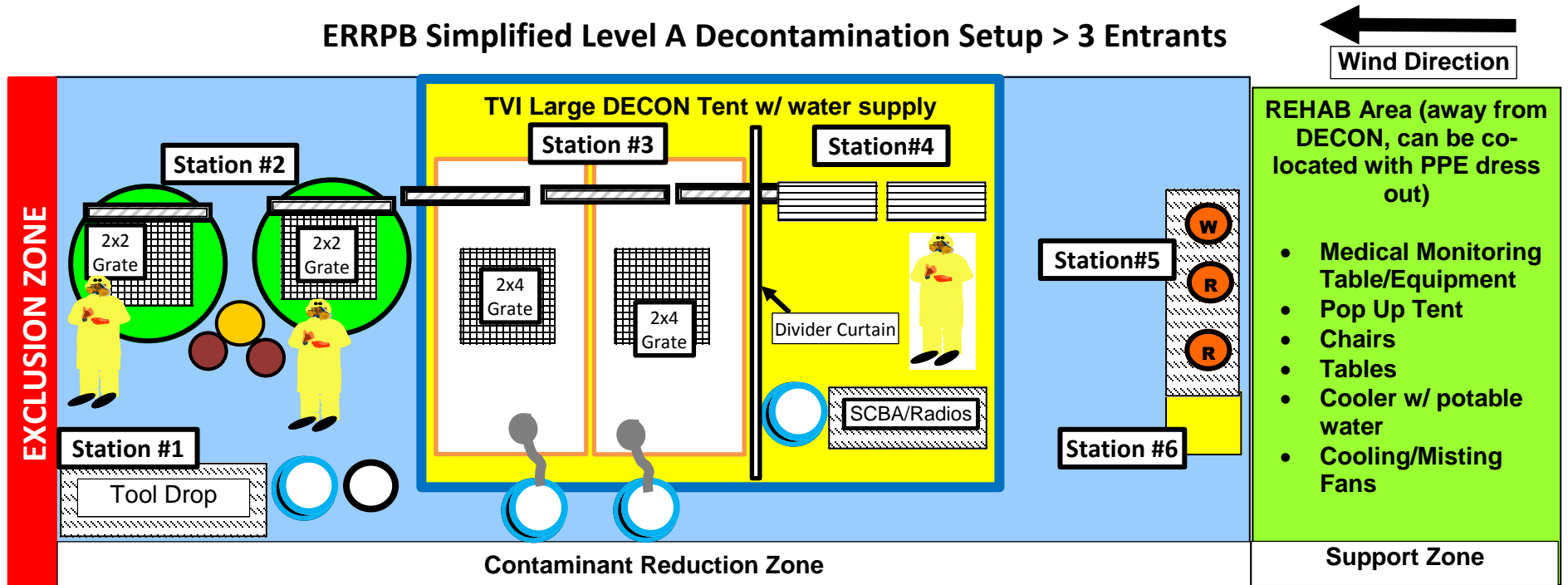
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ERRPB Simplified Level A Decontamination Setup > 3 Entrants



Equipment List:

- | | |
|---------------------------------|-----------------------|
| 2 – 10x30 Tarp/Plastic | 2 – Plastic Pool |
| 6 – Traffic Cones | 2 – 2x2 Plastic Grate |
| 1 – Roll Caution Tape | 5 – Saw Horses |
| TVI Large DECON Line | 3 – 4-foot tables |
| • 1 – TVI Lg. DECON Tent | 2 – Long Handle Brush |
| • 2 – Collection Basins | 2 – Hudson Sprayer |
| • 1 – Divider Curtain (2 sides) | 4 – 5-gallon buckets |
| • 2 – Sump Pump | 1 – Hand/Face Wash |
| • 2 – 2x4 Plastic Grate | DECON Solutions |
| • 2 – Waste hose | 55-gallon drums |
| • 1 – Supply hose | 55-gallon drum liners |
| • 2 – Extension Cord w/ GFCI | Spill Pads |
| • 1 – Generator | 1 – MultiRAE Pro |
| • Adaptors and tools | |

Legend

Tarp/Plastic	Spill Pads	Drum Liner
TVI DECON Line	Grating	SCBA Mask Wash
TVI Collection Basin	Saw Horse	SCBA Mask Rinse
Kiddie Pool	Bench	DECON Solution Bucket/Brush
Table, covered w/ plastic	55-gal drum	Hudson Sprayer for Rinse
Sump Pump/ Waste Hose	DECON Attendant (One w/ MultiRAE Pro)	Hand/Face Wash Station

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ERRPB Specific Level A Decontamination Steps

Station #1	1. Sample and Equipment Drop: All equipment should be placed in a designated drop area for DECON. Position any equipment and/or instruments that are returning to the EZ so that subsequent Entry Teams can easily collect them. Follow the Sample DECON process for all media samples obtained in the EZ. Trash, disposable sampling equipment, extra outer gloves, etc. should be left in an appropriate receptacle in the exclusion zone.
Station #2	2. Entrant completes assisted gross wet DECON of outer gloves and boots. Brush in a downward motion, away from the suit into the collection pool
	3. Attendant unlatches boots, removes and bags the HAZMAT boots for additional DECON
Station #3	4. Entrant enters Single Basin TVI DECON Tent and completes a self-wash. Arms out and up and rotate, 10 seconds per each of the four points of the compass. NOTE: If the Entry Team consists of more than three members, consider using the large TVI DECON Tent for the self-wash station. The Entrant will complete a slow rotation as they move from basin to basin.
Station #4	5. Entrant exits DECON Tent and steps into drum liner. Attendant uses appropriate air monitoring/testing equipment (MultiRAE Pro, TVA 1000, pH Paper, M8 Paper, etc.) to verify efficacy of DECON. <ul style="list-style-type: none">• For VOC monitoring, less than TLV/TWA or background, whichever is less• For pH monitoring, between 6 and 8• For other toxic sensor monitoring, no detectable levels• M8 Paper, no color change
	6. Attendant unzips and removes outer suit down past waist. Attendant seals suit in the drum liner for either further DECON or disposal.
	7. Entrant steps into a second drum liner.
	8. Attendant removes radio equipment and sets aside for reuse
	9. Maintaining Air Supply <ul style="list-style-type: none">• Entrant loosens the shoulder and waist straps on SCBA• Attendant removes the SCBA from back, protecting facepiece, regulator and hose line
	10. Remove Tape from Facepiece if necessary <ul style="list-style-type: none">• Use pull tabs, pull gently• Place tape in the drum liner
	11. Unzip Inner Suit <ul style="list-style-type: none">• Pull back zipper overlap if necessary• Use zipper extension, pull gently. Zipper extension could come loose from the fly
	12. Suit Removal <ul style="list-style-type: none">• Only touch the outside of the suit• Remove hood• Remove suit from the shoulders• Gently shake from the should to release suit• Keep outer gloves taped to suit• Keep outer gloves on the outside of the suit



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Station #4	13. Inner Suit Removal <ul style="list-style-type: none">Remove hands from outer glove, do not remove tape, should stay with the suitGently shake hand away from suitUsing inner gloves, grasp the inside of the suit only and remove suit below knees
	14. Suit Removal <ul style="list-style-type: none">Peel down like a bananaSit down if necessaryPush suit into drum liner
	15. SCBA Removal <ul style="list-style-type: none">With gloved hand, remove regulator while activating the cutoff buttonAs you are removing the regulator, step out of the drum liner
Station #5	16. Mask Removal - With inner gloves still on, remove mask and place in wash solution for DECON
	17. Inner Glove Removal <ul style="list-style-type: none">Remove the inner glove by gasping the palm and pulling one glove partially offUsing the inside of the glove that was partially removed, remove the other glove and place in the drum liner
Station #6	18. Hand and Face Wash. Proceed to the hand and face wash station and wash your hands and face with soap and warm water. Although a thorough wash with soap and water is preferred, utilize cleaning wipes if a wash station is not available.
REHAB	19. Proceed to medical monitoring as appropriate. Hydrate and rest.

Full Decontamination Line Process

The following is a step-by-step description of standard full DECON line stations, with notes on implementation for each station. This guideline was developed and published by the OSHA. See <https://www.osha.gov/SLTC/hazardouswaste/training/decon.html> for the complete document. Depending on the response, some stations may be combined, eliminated, or modified to increase the effectiveness and efficiency of DECON operations. Example DECON lines, utilizing all the described stations, are presented on pages 23, 24, and 25, for wet DECON of Level [A](#), [B](#), or [C](#)-suited personnel, respectively.

Gross Physical Removal: Any gross contamination should be removed (if possible) while still in the EZ. Possible methods of removal include the use of paper towels, plastic bags, note paper, or any item that can be used to scrape/wipe unwanted materials from PPE. Any materials used during this step should be left, containerized in the EZ.

- 1) Sample/Equipment/Instrument/Trash Drop: Any trash should be disposed of in a designated receptacle. All reusable equipment should be placed in a designated equipment drop area for subsequent DECON. Position any equipment and/or instruments that are returning to the EZ so

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that subsequent Entry Teams can easily collect them prior to entry. Bagged samples should be placed into a sample DECON container for subsequent DECON, or be brought through DECON by entry personnel. This step normally occurs outside of the entrance to the DECON tent.

- 2) Boot and Glove Wash: A DECON solution wash should be used to prevent spreading contamination during DECON. This step normally occurs outside of the entrance to the DECON tent.
- 3) Boot and glove rinse: A tap water rinse by DECON Team member should be used to remove DECON solution and neutralized agent residues.
- 4) Tape Removal: remove tape, as appropriate from outer gloves and booties.
- 5) External Bootie Removal (if needed): Any external gloves or booties should be removed and placed in designated receptacle. These materials must be considered contaminated and be handled and stored accordingly. This step normally occurs outside of the entrance to the DECON tent.
- 6) External Glove Removal (if needed): Any external gloves or booties should be removed and placed in designated receptacle. These materials must be considered contaminated and be handled and stored accordingly. This step normally occurs outside of the entrance to the DECON tent.
- 7) Suit and Boot Wash: A thorough wash/scrubbing by DECON Team member using DECON solution sprayers and brushes. Hand pump sprayers may be used to apply DECON solutions in addition to water sprayers. This step normally occurs inside of the DECON tent.
- 8) Full PPE Rinse: A tap water rinse by DECON Team member should be used to remove DECON solution and neutralized agent residues. This step normally occurs inside of the DECON tent.

Monitoring Station: Following DECON, PPE, samples, and equipment exiting the DECON line will be monitored by DECON Team member for contaminants of concern. Depending on EZ location, wind direction, and contaminants of concern, the monitoring station should be located to ensure that fugitive emissions from the DECON line are not affecting monitoring results. This step normally occurs inside of the DECON tent in order to isolate the person being monitored and to concentrate any vapors or gases. Note that for some contaminants (especially biological agents); direct reading instrument monitoring may not be feasible. Use of test strips (pH, cyanide, etc.) or the collection of wipe samples for subsequent analysis may also be used to monitor for the efficacy of DECON.

- 9) SCBA Tank/APR Cartridge Change if immediately re-entering the EZ.
- 10) PPE Boot Removal: Remove decontaminated boots. Depending on EZ location, wind direction and contaminants of concern, PPE removal area should be sufficiently removed from the monitoring station to ensure that no fugitive emissions from the EZ or DECON line are impacting the PPE removal area. The PPE removal area may be outdoors, or may be under an open-sided shelter in adverse weather conditions, but should not be outside the CRZ.



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Level A PPE	Level B PPE	Level C PPE
11) PPE Suit Doffing: Entry Team personnel should remain on air through this step. The DECON Team member will assist in doffing of the suit. The suit should be unzipped, and carefully rolled outward and downward from the zipper opening. Care should be taken to ensure that no external surface of the suit touches any portion of the wearer or their clothes during de-suiting. A designated area should be established for isolation and storage of suits prior to final disposition or disposal.	11) SCBA Removal: The Entry Team member should go off air and remove the SCBA, leaving their face mask on until the SCBA is fully removed. A designated area should be established for SCBA staging pending air cylinder change-out and reuse.	11) PPE Suit Doffing: Entry Team personnel should keep mask on through this step. The DECON Team member will assist in doffing of the suit. The suit should be unzipped, and carefully rolled outward and downward from the zipper opening. Care should be taken to ensure that no external surface of the suit touches any portion of the wearer or their clothes during de-suiting. A designated area should be established for isolation and storage of suits prior to final disposition or disposal.
12) SCBA Removal: The Entry Team member should go off air and remove the SCBA, leaving their face mask on until the SCBA is fully removed. A designated area should be established for SCBA staging pending air cylinder change-out and reuse	12) PPE Suit Doffing: Entry Team personnel should remain on air through this step. The DECON Team member will assist in doffing of the suit. The suit should be unzipped, and carefully rolled outward and downward from the zipper opening. Care should be taken to ensure that no external surface of the suit touches any portion of the wearer or their clothes during de-suiting. A designated area should be established for isolation and storage of suits prior to final disposition or disposal.	12) Inner Glove Wash: The Entry Team member should remove their inner gloves and place in an appropriate non-hazardous trash receptacle.



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Level A and B PPE	Level C PPE
13) Inner Glove Wash: The Entry Team member should remove their inner gloves and place in an appropriate non-hazardous trash receptacle.	13) Inner glove rinse: A tap water rinse by DECON Team member should be used to remove DECON solution and neutralized agent residues.
14) Inner glove rinse: A tap water rinse by DECON Team member should be used to remove DECON solution and neutralized agent residues.	14) Remove facepiece after inner gloves are removed or washed.
15) Remove SCBA facepiece after inner gloves are washed.	15) At the Inner Glove Removal station, persons exiting the DECON line should be provided with their eyeglasses as needed, their shoes/boots (or other appropriate footwear), and any other clothing items necessitated by weather conditions.
16) At the Inner Glove Removal station, persons exiting the DECON line should be provided with their eyeglasses as needed, their shoes/boots (or other appropriate footwear), and any other clothing items necessitated by weather conditions.	16) Inner suit/clothing removal: remove the inner suit or coveralls as appropriate.
17) Inner suit/clothing removal: remove the inner suit or coveralls as appropriate	17) Field Wash: Facilities should be provided for a hand and face wash, or in some cases full shower capability as needed after exiting the CRZ. Facilities should also be provided for mask sanitizing and DECON prior to reuse.
18) Field Wash: Facilities should be provided for a hand and face wash, or in some cases full shower capability as needed after exiting the CRZ. Facilities should also be provided for mask sanitizing and DECON prior to reuse.	18) Redress, Rest and Rehabilitation Station: Area for response personnel to rest, re-hydrate, and is observed for any latent exposure symptoms. Redress for additional entries.
19) Medical Monitoring Station: Medical monitoring should take place once personnel have exited the CRZ. Rest and Rehabilitation Station: Area for response personnel to rest, re-hydrate, and is observed for any latent exposure symptoms. Redress for additional entries. Redress for additional entries.	



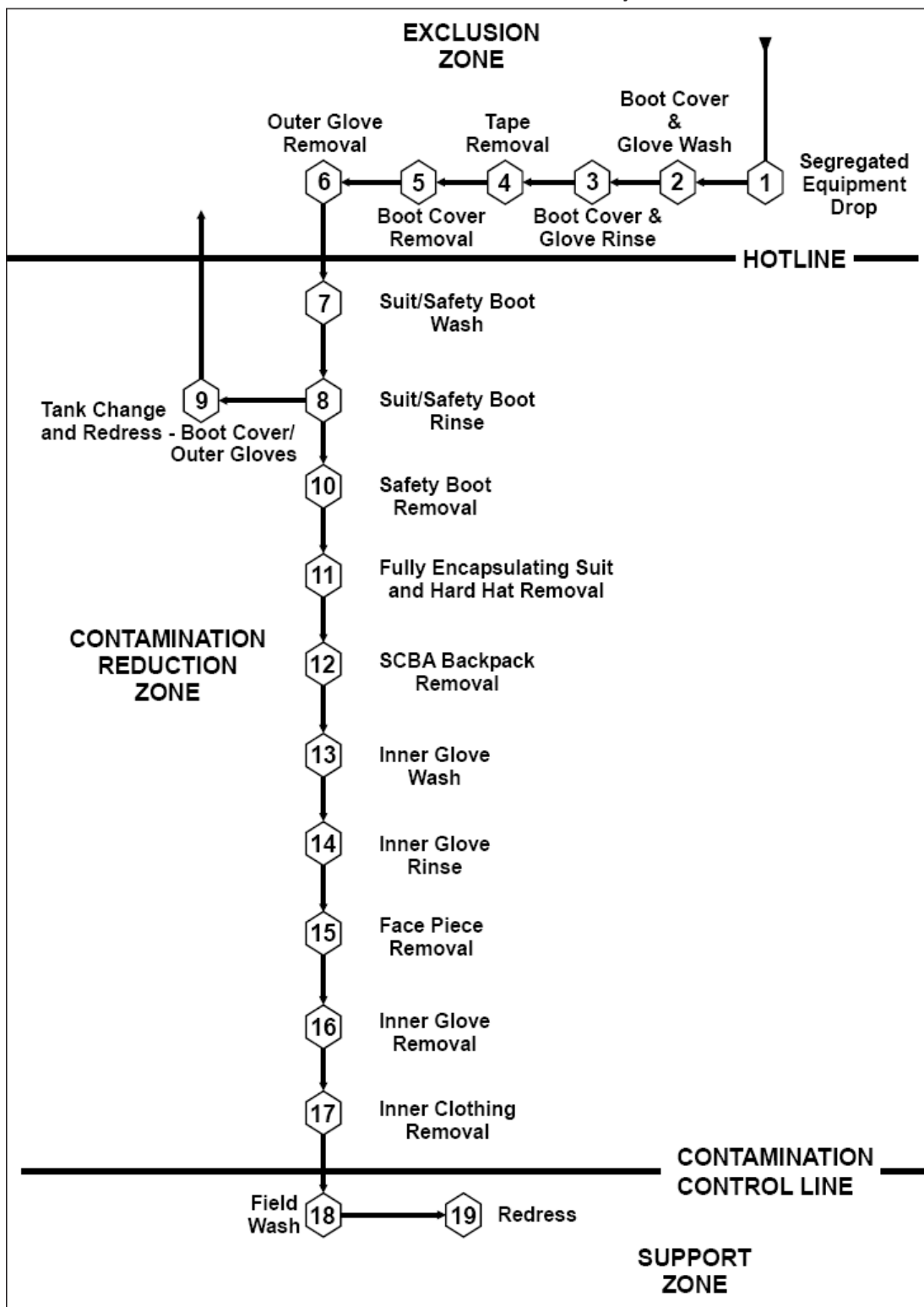
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Level A – Full Decontamination Layout





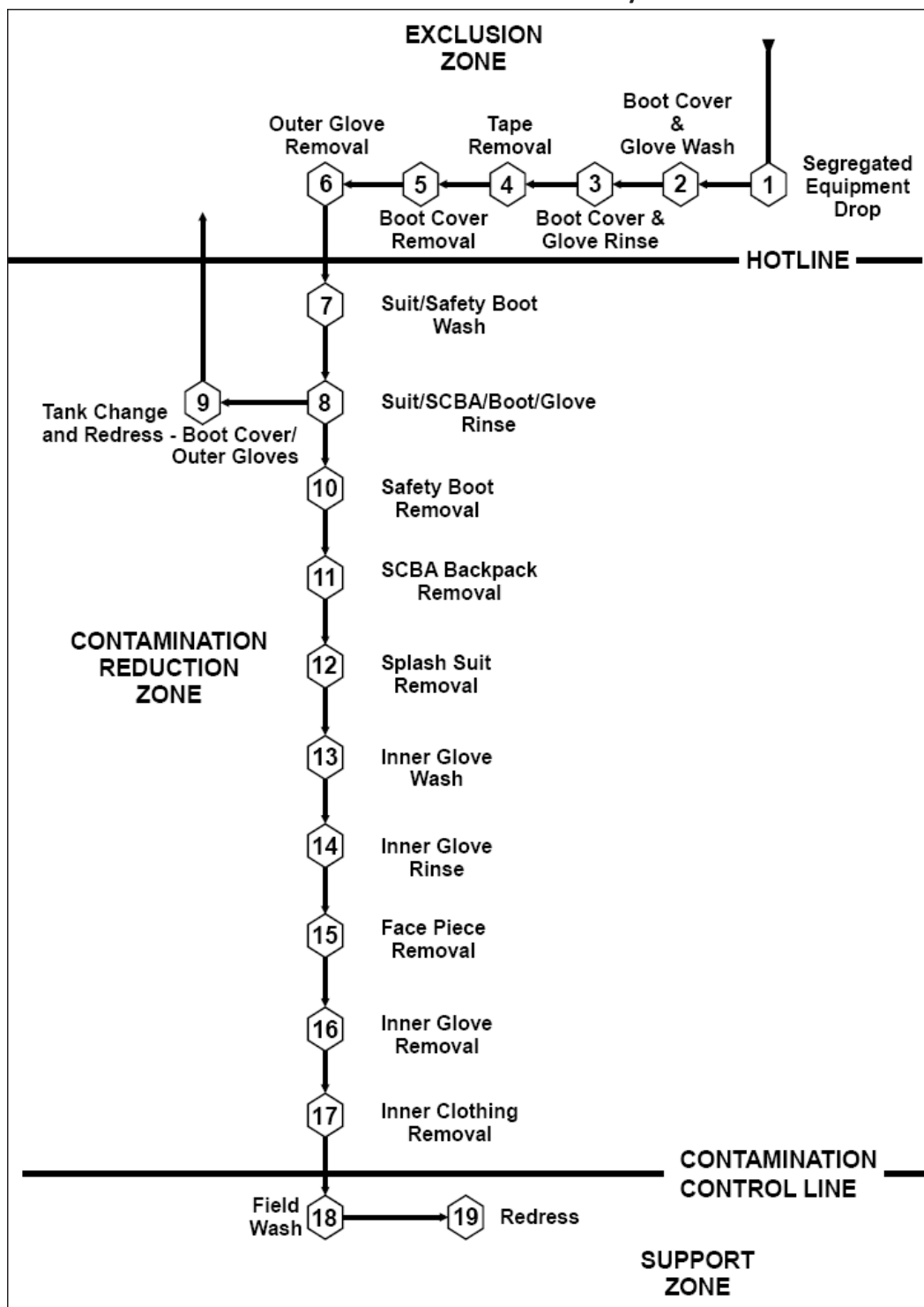
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Level B - Full Decontamination Layout





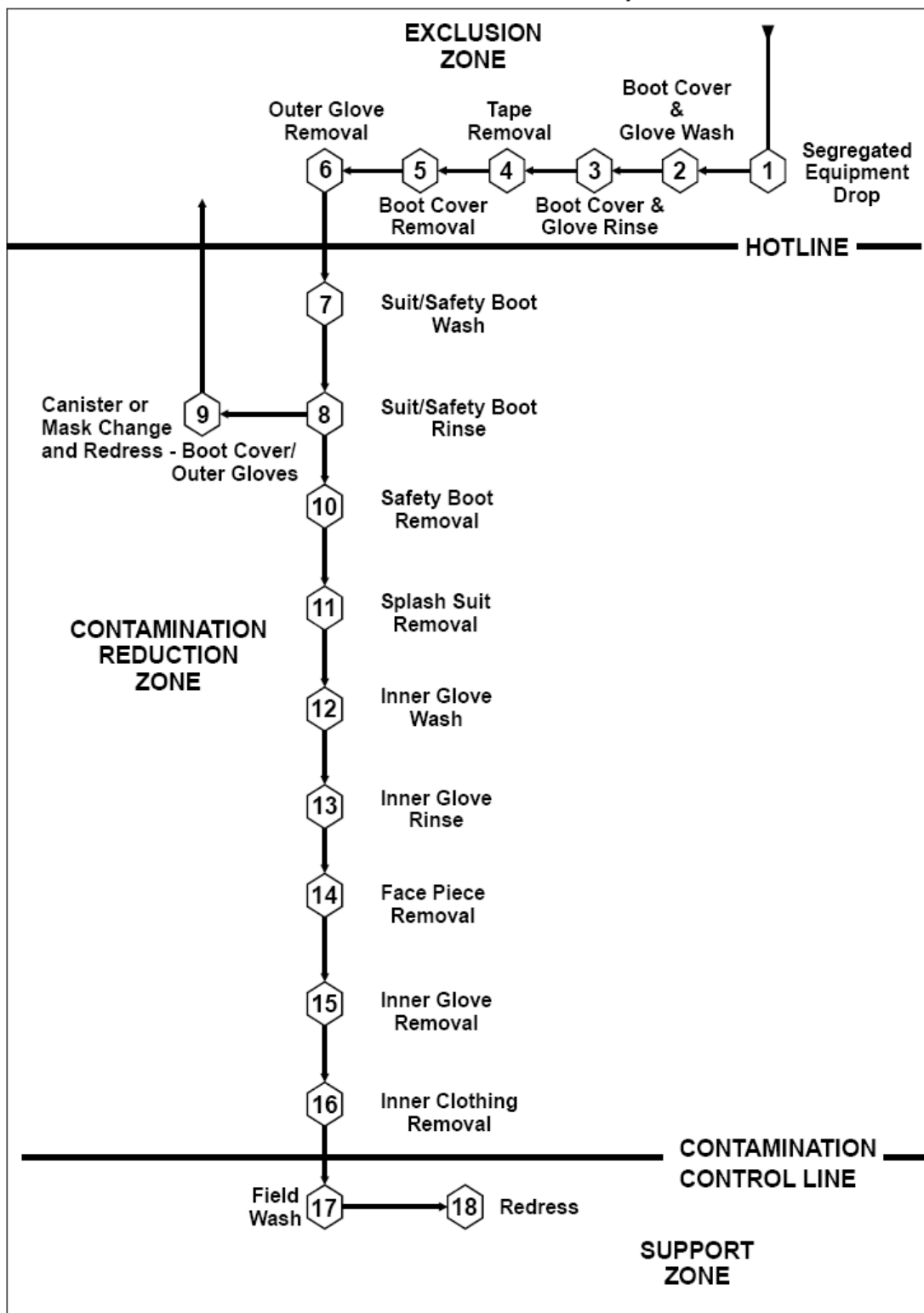
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Level C – Full Decontamination Layout





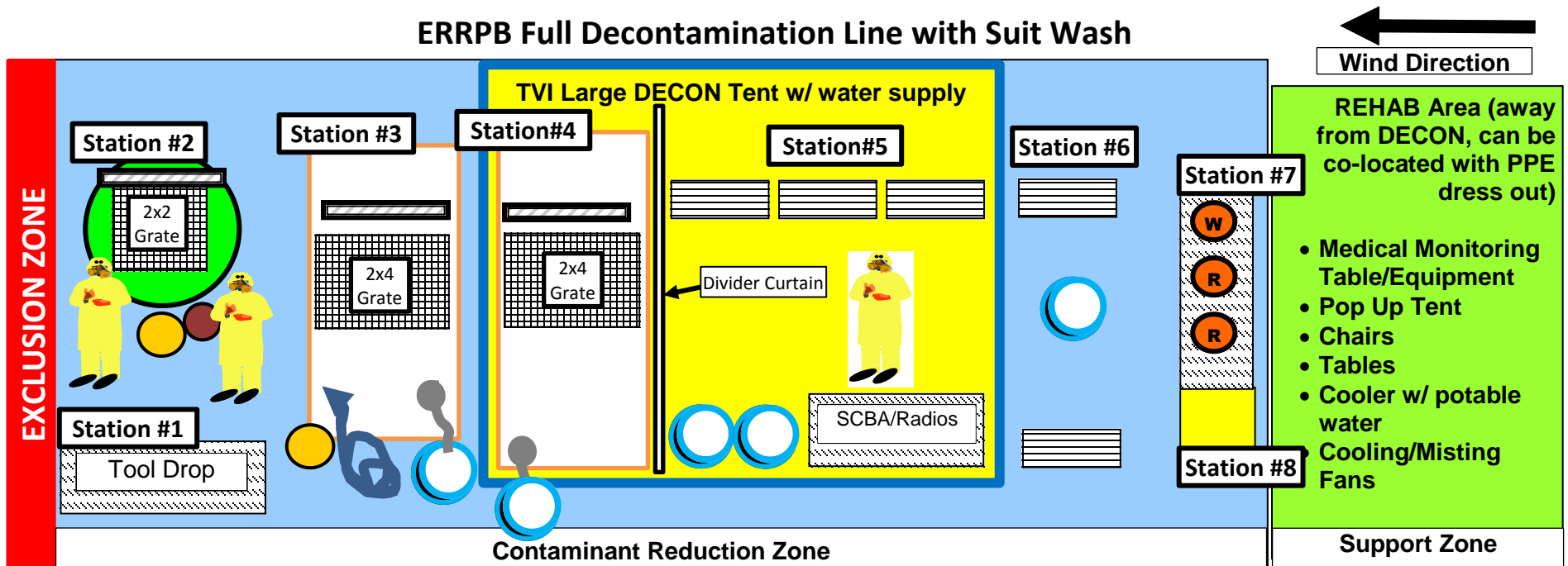
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ERRPB Full Decontamination Line with Suit Wash



Equipment List:

- | | |
|---------------------------------|-------------------------------|
| 2 – 10x30 Tarp/Plastic | 1 – 2x2 Plastic Grate |
| 6 – Traffic Cones | 3 – Saw Horses |
| 1 – Roll Caution Tape | 3 – 4-foot tables |
| TVI Large DECON Line | 1 – Long Handle Brush |
| • 1 – TVI Lg. DECON Tent | 1 – Extension Handle |
| • 2 – Collection Basins | Brush |
| • 1 – Divider Curtain (2 sides) | 1 – Spray Wand w/ Supply Hose |
| • 2 – Sump Pump | 1 – Hudson Sprayer |
| • 2 – 2x4 Plastic Grate | 5 – 5-gallon buckets |
| • 2 – Waste hose | 1 – Hand/Face Wash |
| • 1 – Supply hose | DECON Solutions |
| • 2 – Extension Cord w/ GFCI | 55-gallon drums |
| • 1 – Generator | 55-gallon drum liners |
| • Adaptors and tools | Spill Pads |
| • 1 – Plastic Pool | 1 – MultiRAE Pro |

Legend

Tarp/Plastic	Grating	Spill Pads
TVI DECON Line	Saw Horse	Drum Liner
TVI Collection Basin	Bench	SCBA Mask Wash
Table, covered w/ plastic	55-gal drum	SCBA Mask Rinse
Kiddie Pool	DECON Attendant (One w/ MultiRAE Pro)	DECON Solution Bucket/Brush
Spray Wand/ Supply Hose		Hudson Sprayer for Rinse
Sump Pump/ Waste Hose		Hand/Face Wash Station



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Sample Decontamination

One member of the Entry Team should act as a sample custodian. The sample custodian must have all samples in their direct control/observation at all times until the samples have passed through the DECON line and custody is relinquished via a Chain of Custody (CoC) form. Samples coming out of the EZ will be containerized in a primary sample container, and usually in at least one plastic baggie. The inner plastic bag may have been decontaminated while in the EZ and placed in an outer plastic baggie, or may consist of just the baggie and container. Standard protocol is to DECON the outside surface of the outermost plastic bag, but to not DECON the primary sample container.

For limited numbers of samples, the bagged samples may be carried through the DECON line by Entry Team members, and be decontaminated simultaneously with the Entry Team members. For larger amounts of samples, the samples will be brought out of the EZ and placed in a sample DECON container located at the first DECON Station, normally containing the appropriate DECON solution. Following the decontamination of all Entry Team personnel, DECON Team members will retrieve samples from the sample DECON container and complete sample DECON. DECON of samples will consist of a wash/wipe using the DECON solution, followed by water rinse, and drying with a paper towel. The sample may then be placed in an outer plastic bag (if not already double-bagged), and delivered to the designated sample custodian, who will assume custody of the sample via a CoC form.

Extra precautions need to be taken when decontaminating biological samples that are to be delivered to a State Laboratory that are part of Laboratory Response Network. The sample custodian should verify that the outer bag is sealed. The sample bags should be placed on a clothing rack with the bag opening facing down. This ensures that the DECON solution does not enter the bag. Spray the bags with amended bleach solution and allow for a 10 minute contact time. After the required contact time, rinse bags with water and dry off. The sample may then be placed in an outer plastic bag (if not already double-bagged), and delivered to the designated sample custodian, who will assume custody of the sample via a CoC form.

DECON Solutions

<i>Type of Contamination</i>	<i>DECON Solution Used</i>	<i>Cautions</i>	<i>Special Modifications to DECON Line</i>
Most circumstances and most toxic industrial chemicals	Water; Water/Dawn Dish Detergent or Simple Green mixture	N/A	N/A
Chemical Agents	0.5% Sodium Hypochlorite; 0.5% Calcium Hypochlorite	Caustic to suit and skin.	Due to difficulty/impracticality in maintaining solution contact time, standard water/detergent mix is used with hypochlorite solution added to DECON line basins to neutralize agents after removal.



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Type of Contamination	DECON Solution Used	Cautions	Special Modifications to DECON Line
Spore-Forming Biological Agents	0.5% Sodium Hypochlorite amended with vinegar	Caustic to suit and skin. pH MUST be within 6-8. Solution must be used within 3 hours of preparation.	Hypochlorite solutions should be prepared by combining a bleach/tap water mix and white vinegar/tap water mix. Always dilute bleach before adding vinegar. 8 parts water:1 part bleach:1 part vinegar.
Non-Spore Biological Agents	0.5% Sodium Hypochlorite or 5% Sodium Hypochlorite	Caustic to suit and skin. 5% solution extremely caustic.	Hypochlorite solutions should be prepared by combining a bleach/tap water mix and white vinegar/tap water mix. Always dilute bleach before adding vinegar.
Water-Reactive Chemicals	Dry methods such as wiping or HEPA Vac, or large amounts of water to quickly dilute chemical	When using water, reaction can off gas dangerous gases	When using water, DECON should take place in a well-ventilated area. Air monitoring during DECON would be important.
Weaponized biologicals	Dry methods while wetting the contaminate	Must be careful to limit spread of contaminants, especially if easily aerosolized	Stand-alone, self-service water wash station should be established after the Glove and Boot Wash Station. Station would utilize a personal DECON tent to prevent contamination of the full DECON line. Use of negative air machines should be considered

For most circumstances, as well as for most toxic industrial chemicals (TICs), the standard DECON solution will be copious amounts of water or a detergent/water mix (i.e., Dawn Dish Detergent, Simple Green). Detergent and water will not destroy most TICs, but it will help to remove them from PPE and other surfaces, and will dilute the material, reducing its toxicity. Using warm water will improve the effectiveness of water as a solvent. Fresh water also has a limited capacity to remove chemical agents via hydrolysis.

For chemical agents, solutions that oxidize and/or hydrolyze can be used for DECON. Most chemical warfare agents (nerve, blister agents, etc.) contain either sulfur molecules that are reduced in oxidation reactions, or contain phosphorus groups that can be hydrolyzed. Therefore, most chemical decontaminants are designed to either oxidize or hydrolyze. Oxidative chlorination is the general term for solutions containing active chlorine, including hypochlorite solutions such as household bleach. The pH of a solution is important in determining the amount of active chlorine concentration, with an alkaline solution being most effective. The standard DECON solution for chemical agents is a 0.5% sodium hypochlorite solution (household bleach is usually 5% sodium hypochlorite) or 0.5% calcium hypochlorite solution. Alkaline chemical hydrolysis reaction works via the hydroxide ion reacting with phosphorus atoms; the hydrolysis rate is dependent on the chemical structure and reaction conditions such as pH and temperature. The rate increases sharply at pH values higher than 8. Due to the caustic nature of the

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solution (especially for PPE levels less than Level A), and due to the difficulty/impracticality in maintaining solution contact time, a standard detergent and water solution should be used on the Entry Team, with the hypochlorite solution added to DECON line basins to neutralize/deactivate agents after their removal.

For anthrax and other spore-forming biological agents, a 0.5% sodium hypochlorite solution with a pH of between 6 and 8 can be used as a DECON solution. However, due to the caustic nature of the solution (especially for PPE levels less than Level A), and due to the difficulty/impracticality in maintaining solution contact time (15 minutes or more for full effect), a standard detergent and water solution may be used, with the hypochlorite solution added to DECON line basins to neutralize agents after their removal. If hypochlorite solutions are used, they should be prepared by diluting 1 part bleach with 2 parts tap water, then adding 1 part distilled white vinegar and 6 parts tap water. More or less vinegar may be needed to achieve a target pH of 7, depending on the original pH of the tap water used. Always dilute the bleach with water before adding the vinegar. Mixing of vinegar and bleach without dilution may produce off gassing of chlorine gas. The final pH of the DECON solution should be checked with pH paper to ensure that it is approximately 7, but always within the range of 6 to 8. The DECON solution should be used within 4 hours of preparation. For non-spore-forming biological agents, a non-pH-balanced 0.5% sodium hypochlorite solution similar to that for chemical weapons should be used. For both non-spore-forming biological agents and chemical agents, a 5% sodium hypochlorite solution (straight household bleach) can also be used as a DECON solution. However, stronger bleach solutions produce stronger off-gassing hazards to DECON Team personnel and responders, and caustic bleach solutions will damage skin, and degrade metal and other materials over time. Care must be taken to avoid any skin contact with any bleach solution, and to limit bleach solution contact with metals and other materials susceptible to corrosion if the materials are to be reused.

Water-reactive chemicals present a challenge for DECON solution selection. There is often enough moisture in the air to cause a reaction with water-reactives, eliminating or lessening the hazard. Dry DECON methods including physical removal via wiping (especially for gross contamination) or HEPA vacuuming may be used. Depending on the degree of contamination and specific reaction produced, a water solution may still be used for DECON of a water-reactive chemical. For example, if hydrogen is produced when a water-reactive chemical is mixed with water, and if the DECON takes place with copious amounts of water, in a well-ventilated area, with no chance of hydrogen buildup and no ignition sources, water would be an acceptable choice. Air monitoring for reaction byproducts would be especially important in water-reactive chemical DECON.

DECON Line Modifications:

Weaponized Anthrax: For weaponized anthrax powder incidents, and possibly for other incidents involving highly toxic dry powders that are easily aerosolized and highly mobile, a stand-alone, self-service water wash station should be established after the Glove and Boot Wash Station. This station, which could utilize one of the personal DECON tents, will serve the purpose of wetting down the material to minimize subsequent contamination of the full DECON line, and to prevent the spread of material beyond the CRC into the CRZ. In addition, the use of negative air machines to maintain a negative pressure during DECON should be considered. This may require modification of the DECON tents, or construction of an alternative DECON line shelter, and would involve specific procedures for entering and exiting the DECON line to



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maintain the negative pressure.

Biological Agents: For most biological agent incidents, Level C PPE with the use of a powered air purifying respirator (PAPR), or possibly an air purifying respirator (APR), may be the appropriate PPE level. Hypochlorite solutions should not be used on bare skin, PAPR blower motors, communication equipment and other equipment that cannot be submerged in the DECON solution. Decontamination of this equipment should be conducted using hypochlorite wipes (rather than a spray) to minimize damage. Use an approved decontamination wipe, gel or solution on bare skin.

Water-Reactive Chemicals: As noted in the DECON Solutions section, DECON of water-reactive chemicals pose a special challenge, and there are multiple options that may be considered. The identity and characteristics of the chemical (including mobility and persistence), reaction specifics and by products (possibly obtained by a manufacturer of similar material), and expected contaminant levels must be known to properly conduct DECON of water reactive chemicals. If the reaction produces relatively low levels of toxic or flammable vapors, these hazards may be determined to be an acceptable hazard, and a combination of the standard DECON line, possibly combined with a stand-alone shower, and with close attention to monitoring of reaction by-products, and may be used. Visual inspection and dry DECON methods including the use of tape presses or manual wiping of contaminated areas with paper towels or dry cloths may be used to remove gross contamination. Simple doffing of PPE, especially contaminated booties or gloves, may be used if contaminant levels are relatively low and doing so does not create an imminent hazard to Entry and DECON Team personnel. A combination of wet and dry methods may be needed, depending on the contaminants of concern and degree of contamination.



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Appendix A Example Decontamination Plan

- Blank Form
- Level B, C and D+ Plan (simplified)
- Level A Plan (simplified)



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DECONTAMINATION PLAN TEMPLATE

Decontamination Procedures		
Decontamination Solution		Type of DECON: <input type="checkbox"/> Wet <input type="checkbox"/> Dry
Personnel (Level A, B, C) Decontamination Stations (Check all that will be utilized)		
<input type="checkbox"/> Tool/Sample Drop	<input type="checkbox"/> Outer Boot/Outer Glove Wash and Rinse	<input type="checkbox"/> Outer Boot/Outer Glove Removal
<input type="checkbox"/> Outer Garment Wash	<input type="checkbox"/> Outer Garment Removal	<input type="checkbox"/> Respirator Removal/Cleaning
<input type="checkbox"/> Inner Glove Removal	<input type="checkbox"/> Wash Hands and Face with Soap/Water	<input type="checkbox"/> Shower
Personnel Decontamination Procedures (Describe the personnel DECON steps)		
Emergency Decontamination Procedures (Describes the steps to be followed if emergency DECON is necessary)		
Equipment Decontamination Procedures (Including Heavy Equipment)		
Sample Decontamination Procedures		
Sampling Equipment Decontamination Procedures		
Decontamination Waste Disposal Procedures		
Decontamination Equipment		
<input type="checkbox"/> Plastic sheeting/Tarps	<input type="checkbox"/> Hoses	<input type="checkbox"/> Tables
<input type="checkbox"/> Benches	<input type="checkbox"/> Hose Connections	<input type="checkbox"/> Pop-up Tents
<input type="checkbox"/> TVI Shower Tents	<input type="checkbox"/> Spray Nozzles	<input type="checkbox"/> Pools/Basins
<input type="checkbox"/> Plastic Grates	<input type="checkbox"/> Trash Cans	<input type="checkbox"/> Saw Horses
<input type="checkbox"/> 5-gallon buckets	<input type="checkbox"/> Sorbent Pads	<input type="checkbox"/> Long Handle Scrub Brushes
<input type="checkbox"/> Hudson Sprayers	<input type="checkbox"/> 55-gallon Drum Liners	<input type="checkbox"/> Wrenches and Adaptors
<input type="checkbox"/> Traffic Cones	<input type="checkbox"/> Drums/Totes	<input type="checkbox"/> Caution Tape
<input type="checkbox"/> Sump Pumps (hand or electric)	<input type="checkbox"/> Hand and Face Wash Station	<input type="checkbox"/> Decontamination Solutions

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DECONTAMINATION PLAN LEVEL B, C and D+ ENTRIES

Decontamination Procedures			
Decontamination Solution		Type of DECON:	<input checked="" type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry
Personnel (Level A, B, C) Decontamination Stations (Check all that will be utilized)			
<input checked="" type="checkbox"/> Tool/Sample Drop	<input checked="" type="checkbox"/> Outer Boot/Outer Glove Wash and Rinse	<input checked="" type="checkbox"/> Outer Boot/Outer Glove Removal	
<input type="checkbox"/> Outer Garment Wash	<input checked="" type="checkbox"/> Outer Garment Removal	<input checked="" type="checkbox"/> Respirator Removal/Cleaning	
<input checked="" type="checkbox"/> Inner Glove Removal	<input checked="" type="checkbox"/> Wash Hands and Face with Soap/Water	<input type="checkbox"/> Shower	
Personnel Decontamination Procedures (Describe the personnel DECON steps)			
<ol style="list-style-type: none">1. Sample and Equipment Drop.2. Entrant completes self or assisted gross wet DECON of outer gloves and boots.3. Entrant steps into a large poly drum liner.4. Attendant disconnects Comms.5. <<delete this step if using APR or Level D+ PPE>> Without Removing Air Supply. Entrant loosens the shoulder and waist straps on SCBA or PAPR.6. Attendant removes the SCBA from back or the PAPR from the waist, protecting facepiece, regulator and hose line.7. Boot Removal - Entrant sits and uses pull tab to remove tape from boots. Places tape in the drum liner.8. Boot Removal - Use heel-toe release to remove boots. Remove boots and set aside in another drum liner for bin for additional DECON. The attendant should assist with boot removal if the entrant is having trouble doffing the boots.9. Remove Tape from Facepiece - Use pull tabs. Pull gently. Place tape in the drum liner.10. Pull Back Zipper Overlap. Pull back carefully, adhesive may stick to gloves.11. Unzip Suit - Use zipper extension. Pull gently.12. Suit Removal - Only touch the outside of the suit with outer gloves. Remove hood. Remove suit from the shoulders. Gently shake from the shoulders to release suit. Keep outer gloves taped to suit. Keep outer gloves on the outside of the suit.13. Suit Removal - Remove hands from outer glove, do not remove tape, should stay with the suit. If not, remove outer gloves using the method described in Step 15. Gently shake hand away from suit. Using inner gloves, grasp the inside of the suit only and remove suit below knees.14. Suit Removal - Peel down like a banana. Only touch the inside of the suit. Push suit into drum liner15. <<delete this step if using Level D+ PPE>> SCBA/PAPR Removal - With gloved hand, remove regulator while activating the cutoff button or PAPR blow motor switch. As you are removing the regulator, step out of the drum liner.16. <<delete this step if using APR or Level D+ PPE>> Mask Removal - With inner gloves still on, remove mask and place in wash solution for DECON.17. Inner Glove Removal - Remove the inner glove by gasping the palm and pulling one glove partially off. Using the inside of the other glove, remove the place in the drum liner.18. Hand and Face Wash. Proceed to the hand and face wash station and wash your hands and face with soap and warm water.19. Proceed to medical monitoring as appropriate. Hydrate and rest.			



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Emergency Decontamination Procedures (Describes the steps to be followed if emergency DECON is necessary)

1. Remove tape from boots and outer gloves.
2. Removal Boots and outer gloves and bag for disposal and/or DECON.
3. Remove communication equipment if necessary.
4. Remove SCBA backpack or PAPR blower motor.
5. Remove chemical protective suit and bag for disposal.
6. Remove respirator protection and facepiece.
7. Provide needed medical care.

Equipment Decontamination Procedures (Including Heavy Equipment)

Station 1: Segregate Equipment Drop

Deposit equipment used on-site (i.e., tools, sampling devices and containers, monitoring instruments radios, clipboards, etc.) on the plastic drop cloth/sheet or in different containers with plastic liners. Each will be contaminated to a different degree and may decontaminated by different methods. Segregation at the drop reduces the probability of cross contamination. Loose leaf sampling data sheets or maps can be placed in plastic zip lock bags if contamination is evident.

Station 2: Physical Removal

Scrub equipment with detergent and water using long handle brushes or damp cloths. Sensitive equipment (i.e., radios, air monitoring) should be wiped down with a damp cloth/detergent. Consult the manufacturers for recommended decontamination solutions and procedures.

Station 3: Physical Removal with A High-Pressure Washer (Optional)

Use high pressure wash on grossly contaminated equipment that cannot be removed by hand. Pressure washing is typically used to decontaminate containment boom, boats, heavy equipment and other large equipment. Do not use high-pressure wash on sensitive or non-waterproof equipment. A specially constructed DECON pad will be needed for large equipment.

Station 4: Equipment Rinse

Wash soap off equipment with water by immersing the equipment in the water while brushing or using a low-pressure hose/sprayer. Repeat as many times as necessary.

Station 5: DECON Efficacy Screening

Use appropriate air monitoring/testing equipment (MultiRAE Pro, TVA 1000, pH Paper, Lumex, M8 Paper, etc.) or a visual assessment to verify efficacy of DECON.

- For VOC monitoring, less than TLV/TWA or background, whichever is less
- For pH monitoring, between 6 and 8
- For metallic Mercury, less than 3000 ng/m³
- For other toxic sensor monitoring, no detectable levels
- M8 Paper, no color change

Station 6: Clean Equipment Drop

Lay clean equipment on plastic sheeting. Once air dried stow/move equipment appropriate area for demobilization or reuse. Media sampling equipment will need to be further decontaminated following [SESDFPROC-205, Field Equipment Cleaning and Decontamination](#) before reuse.

Sample Decontamination Procedures

Sampling Equipment Decontamination Procedures



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Decontamination of equipment will be performed by using portable washtubs, sprayers, and disposable scrub brushes. Any equipment that cannot be thoroughly decontaminated along with the contents from the washtub will be considered hazardous and will be stored and disposed of appropriately.

Media Sampling Equipment

Media sampling equipment will need to be further decontaminated following [SESDFROC-205, Field Equipment Cleaning and Decontamination](#) before reuse.

Monitoring Equipment

If monitoring equipment becomes contaminated, it may require special cleaning techniques. Methods for decontamination will be obtained from the equipment's manufacturer.

Hand Tools

Hand tools will be cleaned as appropriate by chemical or physical means. At the end of the incident, if the hand tools cannot be decontaminated, they will be disposed of as hazardous waste.

Decontamination Waste Disposal Procedures

Decontamination waste will be segregated, characterized, and disposed of with similar appropriate waste streams generated by the response. Small amounts of liquid waste will be absorbed with absorbent pads and containerized in 55-gallon drum liners or 55-gallon drums. Other solid waste (spent PPE, Visqueen, etc.) will be containerized into 55-gallon drum liners or 55-gallon drums.

Decontamination Equipment

<input checked="" type="checkbox"/> Plastic sheeting/Tarps	<input type="checkbox"/> Hoses	<input checked="" type="checkbox"/> Long Handle Scrub Brushes
<input checked="" type="checkbox"/> Benches	<input type="checkbox"/> Hose Connections	<input type="checkbox"/> Wrenches and Adaptors
<input type="checkbox"/> TVI Shower Tents	<input checked="" type="checkbox"/> Spray Nozzles	<input checked="" type="checkbox"/> Caution Tape
<input checked="" type="checkbox"/> Plastic Grates	<input checked="" type="checkbox"/> Trash Cans	<input checked="" type="checkbox"/> Decontamination Solutions
<input checked="" type="checkbox"/> 5-gallon buckets	<input checked="" type="checkbox"/> Tables	<input checked="" type="checkbox"/> Sorbent Pads
<input checked="" type="checkbox"/> Hudson Sprayers	<input checked="" type="checkbox"/> Pop-up Tents	<input type="checkbox"/> Drums/Totes
<input checked="" type="checkbox"/> Traffic Cones	<input checked="" type="checkbox"/> Pools/Basins	<input checked="" type="checkbox"/> 55-gallon Drum Liners
<input type="checkbox"/> Sump Pumps (hand or electric)	<input checked="" type="checkbox"/> Saw Horses	<input checked="" type="checkbox"/> Hand and Face Wash Station
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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DECONTAMINATION PLAN LEVEL A ENTRIES

Decontamination Procedures			
Decontamination Solution		Type of DECON:	<input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry
Personnel (Level A, B, C) Decontamination Stations (Check all that will be utilized)			
<input checked="" type="checkbox"/> Tool/Sample Drop	<input checked="" type="checkbox"/> Outer Boot/Outer Glove Wash and Rinse	<input checked="" type="checkbox"/> Outer Boot/Outer Glove Removal	
<input checked="" type="checkbox"/> Outer Garment Wash	<input checked="" type="checkbox"/> Outer Garment Removal	<input checked="" type="checkbox"/> Respirator Removal/Cleaning	
<input checked="" type="checkbox"/> Inner Glove Removal	<input checked="" type="checkbox"/> Wash Hands and Face with Soap/Water	<input type="checkbox"/> Shower	
Personnel Decontamination Procedures (Describe the personnel DECON steps)			
<ol style="list-style-type: none">1. Sample and Equipment Drop.2. Entrant completes assisted gross wet DECON of outer gloves and boots. Brush in a downward motion away from the suit into the collection pool.3. Attendant unlatches boots, removes and bags the HAZMAT boots for additional DECON.4. Entrant enters DECON tent self-wash. Arms out and up and rotate, 10 seconds per four points of the compass.5. Entrant exits DECON Tent and steps into drum liner. Attendant uses appropriate air monitoring/testing equipment (MultiRAE Pro, TVA 1000, pH Paper, M8 Paper, etc.) to verify efficacy of DECON.<ul style="list-style-type: none">• For VOC monitoring - less than TLV/TWA or background, whichever is less• For pH monitoring - between 6 and 8• For other toxic sensor monitoring - no detectable levels• M8 Paper - no color change6. Attendant unzips and removes outer suit down past waist. Attendant seals suit in the drum liner for either further DECON or disposal.7. Entrant steps into a second drum liner.8. Attendant removes radio equipment and sets aside for reuse.9. While maintaining Air Supply, entrant loosens the shoulder and waist straps on SCBA. Attendant removes the SCBA from back, protecting facepiece, regulator and hose line.10. Remove Tape from Facepiece if necessary. Use pull tabs. Pull gently. Place tape in the drum liner.11. Unzip Inner Suit. Pull back zipper overlap if necessary. Use zipper extension.12. Inner Suit Removal. Only touch the outside of the suit. Remove hood. Remove suit from the shoulders. Gently shake from the should to release suit. Keep outer gloves taped to suit. Keep outer gloves on the outside of the suit.13. Inner Suit Removal. Remove hands from outer glove, do not remove tape, should stay with the suit. Gently shake hand away from suit. Using inner gloves, grasp the inside of the suit only and remove suit below knees.14. Inner Suit Removal. Peel down like a banana. Sit down if necessary. Push suit into drum liner.15. With gloved hand, remove regulator while activating the cutoff button. As you are removing the regulator, step out of the drum liner16. Mask Removal. With inner gloves still on, remove mask and place in wash solution for DECON.17. Inner Glove Removal. Remove the inner glove by gasping the palm and pulling one glove partially off. Using the inside of the other glove, remove the place in the drum liner.18. Hand and Face Wash. Proceed to the hand and face wash station and wash your hands and face with soap and warm water.19. Proceed to medical monitoring as appropriate. Hydrate and rest.			



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Emergency Decontamination Procedures (Describes the steps to be followed if emergency DECON is necessary)

1. Connect supplied air to the SAR pass-through.
2. Complete a rapid wet DECON of the outer suit based on the level of contamination.
3. Remove outer boots.
4. Remove, cut person out of the Level A Suit.
5. Remove communication equipment if necessary.
6. Remove SCBA backpack.
7. Remove chemical protective inner suit and bag for disposal.
8. Remove respirator protection and facepiece.
9. Provide needed medical care.

Equipment Decontamination Procedures (Including Heavy Equipment)

Station 1: Segregate Equipment Drop

Deposit equipment used on-site (i.e., tools, sampling devices and containers, monitoring instruments radios, clipboards, etc.) on the plastic drop cloth/sheet or in different containers with plastic liners. Each will be contaminated to a different degree and may be decontaminated by different methods. Segregation at the drop reduces the probability of cross contamination. Loose leaf sampling data sheets or maps can be placed in plastic zip lock bags if contamination is evident.

Station 2: Physical Removal

Scrub equipment with detergent and water using long handle brushes or damp cloths. Sensitive equipment (i.e., radios, air monitoring) should be wiped down with a damp cloth/detergent. Consult the manufacturers for recommended decontamination solutions and procedures.

Station 3: Physical Removal with A High-Pressure Washer (Optional)

Use high pressure wash on grossly contaminated equipment that cannot be removed by hand. Pressure washing is typically used to decontaminate containment boom, boats, heavy equipment and other large equipment. Do not use high-pressure wash on sensitive or non-waterproof equipment. A specially constructed DECON pad will be needed for large equipment.

Station 4: Equipment Rinse

Wash soap off equipment with water by immersing the equipment in the water while brushing or using a low-pressure hose/sprayer. Repeat as many times as necessary.

Station 5: DECON Efficacy Screening

Use appropriate air monitoring/testing equipment (MultiRAE Pro, TVA 1000, pH Paper, Lumex, M8 Paper, etc.) or a visual assessment to verify efficacy of DECON.

- For VOC monitoring, less than TLV/TWA or background, whichever is less
- For pH monitoring, between 6 and 8
- For metallic Mercury, less than 3000 ng/m³
- For other toxic sensor monitoring, no detectable levels
- M8 Paper, no color change

Station 6: Clean Equipment Drop

Lay clean equipment on plastic sheeting. Once air dried stow/move equipment appropriate area for demobilization or reuse. Media sampling equipment will need to be further decontaminated following [SESDFROC-205, Field Equipment Cleaning and Decontamination](#) before reuse.

Sample Decontamination Procedures



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Sampling Equipment Decontamination Procedures

Decontamination of equipment will be performed by using portable washtubs, sprayers, and disposable scrub brushes. Any equipment that cannot be thoroughly decontaminated along with the contents from the washtub will be considered hazardous and will be stored and disposed of appropriately.

Media Sampling Equipment

Media sampling equipment will need to be further decontaminated following [SESDFROC-205, Field Equipment Cleaning and Decontamination](#) before reuse.

Monitoring Equipment

If monitoring equipment becomes contaminated, it may require special cleaning techniques. Methods for decontamination will be obtained from the equipment's manufacturer.

Hand Tools

Hand tools will be cleaned as appropriate by chemical or physical means. At the end of the incident, if the hand tools cannot be decontaminated, they will be disposed of as hazardous waste.

Decontamination Waste Disposal Procedures

Decontamination waste will be segregated, characterized, and disposed of with similar appropriate waste streams generated by the response. Small amounts of liquid waste will be absorbed with absorbent pads and containerized in 55-gallon drum liners or 55-gallon drums. Large amount of liquid waste will be pumped into appropriate drums or totes. Other solid waste (spent PPE, VisQueen, etc.) will be containerized into 55-gallon drum liners or 55-gallon drums.

Decontamination Equipment

<input checked="" type="checkbox"/> Plastic sheeting/Tarps	<input checked="" type="checkbox"/> Hoses	<input checked="" type="checkbox"/> Long Handle Scrub Brushes
<input checked="" type="checkbox"/> Benches	<input checked="" type="checkbox"/> Hose Connections	<input checked="" type="checkbox"/> Wrenches and Adaptors
<input checked="" type="checkbox"/> TVI Shower Tents	<input checked="" type="checkbox"/> Spray Nozzles	<input checked="" type="checkbox"/> Caution Tape
<input checked="" type="checkbox"/> Plastic Grates	<input checked="" type="checkbox"/> Trash Cans	<input checked="" type="checkbox"/> Decontamination Solutions
<input checked="" type="checkbox"/> 5-gallon buckets	<input checked="" type="checkbox"/> Tables	<input checked="" type="checkbox"/> Sorbent Pads
<input checked="" type="checkbox"/> Hudson Sprayers	<input checked="" type="checkbox"/> Pop-up Tents	<input checked="" type="checkbox"/> Drums/Totes
<input checked="" type="checkbox"/> Traffic Cones	<input checked="" type="checkbox"/> Pools/Basins	<input checked="" type="checkbox"/> 55-gallon Drum Liners
<input checked="" type="checkbox"/> Sump Pumps (hand or electric)	<input checked="" type="checkbox"/> Saw Horses	<input checked="" type="checkbox"/> Hand and Face Wash Station
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Appendix B Decontamination Leader Job Aid



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DECON Group/Division Supervisor Responsibilities:

1.	Determine location of DECON area after consulting with Operations Section Chief, HAZMAT Branch Director and/or HAZMAT Group/Division Supervisor as appropriate.	
2.	Determine level of DECON required. Consult with the Technical Specialists as necessary.	
3.	Brief DECON Team of situation and procedures.	
4.	Assign tasks.	
5.	Supervise assembly of needed resources and equipment.	
6.	Supervise set up of DECON corridor.	
7.	Maintain communications with DECON Team. Coordinate with Groups, Divisions and Branches as appropriate (Medical, Site Access, Entry, etc.).	
8.	Supervise personnel protective clothing procedures and safety.	
9.	Monitor DECON activities and manpower. Maintain accountability control.	
10.	Maintain access control.	
11.	Maintain a log on personnel and team activities. Maintain accountability.	
12.	Maintain corridor operation and resources as long as needed.	
13.	Supervise DECON of Team members before shutdown of corridor.	
14.	Supervise disposition of contaminated waste and equipment.	
15.	Attempt to stay in the clean zone at all times.	
16.	Work with the safety officer in all aspects at all incidents.	

DECON Team Leader Checklist:

1.	Obtain situation briefing: a) Material and hazards involved b) Wind and weather factors c) Hot and control zone perimeters d) DECON corridor location e) Overall DECON plan and tactics f) Manpower and resources available g) Level of protection and action needed h) Number of victims and contamination levels i) Outside HAZMAT team or units involved	
2.	Assemble and brief DECON Team - Review DECON plan and pertinent information and assign tasks	
3.	Coordinate with EMS, rehab, and any other adjacent sectors before setup. a) Assure proper locations of other sectors in relation to DECON. b) Assure understanding of DECON procedures and requirements. c) Assure communications for smooth movement of victims, personnel, or equipment. d) Review protection for EMS staff.	
4.	Supervise DECON corridor setup: a) Utilize steps outlined in DECON plan or DECON SOG. b) Provide for safety of staff during setup.	

The online version of this SOG supersedes all other versions. Paper copies of this document are uncontrolled. The controlled version of this document can be found at <https://response.epa.gov/hmanualregion4>.



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	<ul style="list-style-type: none">c) Coordinate with Entry Team Leaders and conduct a walkthrough of DECON setup with Entry Teams. <p>General DECON Corridor Setup:</p> <ul style="list-style-type: none">a) Mark off DECON area with caution tape and/or traffic cones.b) Mark the entrance/exit to the Exclusion Zone and leave one opening for access into and out of DECON.c) Lay-out plastic or tarps over the entire DECON area to contain any spilled contaminated material.d) Lay-out plastic or tarps in appropriate areas for tool, SCBA, and clothing drops.e) Place tables for tool drops, equipment, SCBA Facepiece DECON. Cover tables and benches with plastic.f) Provide hand and face wash and rinse buckets near the clean lineg) Provide a shelter for the medical sector and rehab. Also, there should be replacement clothing available in this area, if needed.h) Extra supplies of gloves, boots, and other DECON items should be made available at or near the DECON sector. <p>Level A and B DECON Corridors:</p> <ul style="list-style-type: none">a) Place wading pool/shower in proper locations.b) Place hose lines at appropriate locations for low pressure rinses.c) Determine DECON solutions needed, mix in five (5) gallon buckets, and place at proper locations with scrub brushes.d) Place full SCBA bottles at SCBA exchange area.	
5.	<p>Supervise, monitor, and maintain control of the sector during operations:</p> <ul style="list-style-type: none">a) Provide DECON briefing to the Entry Teamsb) Maintain checklist off all personnel entering sector.c) Maintain level of protection and safety of personnel.d) Assure personnel are decontaminated prior to SCBA exchange or leaving DECON.e) Maintain access control.f) Operate outside the clean line at the access control point.g) Provide additional needed resources.h) Maintain communications.i) Maintain accountability of all personnel at all times.	
6.	<p>Secure DECON after incident termination:</p> <ul style="list-style-type: none">a) Determine which equipment needs decontamination and which is to be disposed.b) Assure that equipment to be decontaminated later is sealed.c) Insure that all personnel and equipment is decontaminated prior to leaving DECON.d) Insure that all DECON staff go through medical sector for evaluation.e) Insure that all contaminated waste is secured for later removal or sealed for immediate removal before sector termination.f) Document loss of contaminated materials.g) List all disposed contaminated equipment.h) Confirm termination with appropriate General Staff.	